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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Michael A. Kouritzin	Examiner: West, Jeffrey R.	
Serial No.:	09/879,210	Group Art Unit: 2857	
Filed:	June 13, 2001	Docket No.: EA-00095	

7/28 MSB

Title: FLEXIBLE EFFICIENT BRANCHING PARTICLE TRACKING ALGORITHMS

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents on July 10, 2003.

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M.S. Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA.

AMENDMENT

This Amendment is in response to the Office Action of April 14, 2003

IN THE ABSTRACT

Correct the Abstract by deleting the words to read as follows:

A particle filter is employed ~~so that particle locations provide signal information~~ to construct an approximated conditional distribution of probalistic signal state. For an optimal tracking filter, current particles are used with weight value of one for each. To construct an optimal predicting filter, a copy of the current particles are evolved forward to the time for which the prediction is to occur. ~~A new branching particle method allows the construction of optimal smoothing filters.~~ Ancestor particles retain probabilistic data about the likely historical path of the signal. Then these particles, weighted by their associated ancestor particle weights, provide the approximate asymptotically optimal conditional distribution of the signal state at the collection of previous times. The branching particle filter operates recursively on the observation data, allowing real-time operation of the system. It is asymptotically optimal in increasing numbers of particles and in a decreasing period of time between observations, but the rate of convergence with regards to the observation period is extremely fast.

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